CLAIMS

1. A power tool comprising:

a motor as a drive power source;

a body (10) housing the motor and having an end output unit for chucking an end tool (2, 3) driving a fastener (4, 5);

a handle grip (10C) provided integrally with the body (10); and

a light unit (20) disposed at a bottom part of the handle grip (10C) and having a light-emitting element (23) for illuminating a fastener (4, 5) located at a distal end of the end tool (2, 3), the end tool (2, 3) being driven by the motor to tighten the fastener (4, 5) into a workpiece (6); and

wherein the light unit (20) includes a lighting angle adjusting and holding means capable of adjusting a lighting angle of the light-emitting element (23) according to a length of the end tool (2, 3) and fastener (4, 5), and capable of holding the adjusted lighting angle.

2. The power tool as claimed in claim 1, wherein the light-emitting element (23) comprises a yellow LED.

3. The power tool as claimed in claim 1, further comprising:

switch means (26A, 26B) for switching the light-emitting element (23) on and off; and

an off circuit (26C) for automatically turning the light-emitting element off at a predetermined timing after the light-emitting element (23) turns on.

4. The power tool as claimed in claim 1, wherein the light unit (20) comprises:

a pivot shaft (30) supported rotatably about its axis at a bottom part of the handle grip (10C); and

a lever (21) having a base end integrally connected to one end of the pivot shaft (30) and having a free end provided with the light-emitting element (23), the lever (21) being pivotally moved about the axis of the pivot shaft (30); and

wherein the lighting angle adjusting and holding means comprises:

engaging teeth (41A, 42A) provided integrally with the bottom part of the handle grip (10C);

fitting teeth (31) provided integrally with the pivot shaft (30) and meshedly engageable with the engaging teeth (41A, 42A);

a resilient member (34) for urging the fitting teeth (31) in one direction in the axial direction of the pivot shaft (30) to ensure meshing engagement between the fitting teeth (31) and the engaging teeth (41A, 42A); and

a removal prevention means (33) that is movable in unison with the pivot shaft (30) for preventing the pivot shaft (30) from separating away from the bottom part of the handle grip (10C), when the lever (21) is operated to be moved in an opposite direction to the one direction against the urging force of the resilient member (34) to disengage the fitting teeth (31) from the engaging teeth (41A, 42A), the resilient member (34) being interposed between the bottom part of the handle grip (10C) and the removal prevention means (33).

5. The power tool as claimed in claim 4, wherein a pivot shaft support part (40) is provided at the bottom part of the handle grip (10C), the pivot shaft support part being formed with a through-hole (40a) extending in a lateral direction of the body (10), the engaging teeth (41A, 42A) and resilient member (34) contact parts being provided at respective lateral positions inside the through-hole (40a), the pivot shaft (30) being rotatably supported in the bottom part of the handle grip (10C) by extending the pivot shaft (30) through the through-hole (40a) from one side to the other side thereof in the lateral direction;

wherein the pivot shaft (30) has a generally hollow cylindrically shape open at another end (30B) opposite to the one end (30A);

wherein the removal prevention means comprises a bolt (33) with a head (33A) on one end and inserted and screwed to an inner surface of the pivot shaft (30) from the other end (30B) of the pivot shaft (30);

wherein the fitting teeth (31) is provided as a part of the pivot shaft (30) located inside the through-hole (40a) and meshedly engageable with the engaging teeth (41A, 42A); and

wherein the resilient member (34) is disposed inside the through-hole (40a) and having one end in contact with the resilient member contact parts (41B, 42B) and another end in contact with the head (33A).

6. The power tool as claimed in claim 5 wherein the pivot shaft support part (40) comprises a first pivot shaft support part (41) and a second pivot shaft support part (42) each having a laterally symmetrical shape and each being formed with a through-hole (40a) oriented in the lateral direction of the body (10), the engaging teeth (41A, 42A) being provided at the laterally symmetrical locations inside the respective through-holes (40a) of the first pivot shaft support part (41) and second pivot shaft support part (42), the first pivot shaft support part (41) and second pivot shaft support part (42) being located respectively on one side and another side in the lateral direction;

wherein the removal prevention means (33) is detachably engaged with the pivot shaft (30); and

wherein the engaging teeth (42A) of the second pivot shaft support part (42) functions as the resilient member contact part when the engaging teeth (41A) of the first pivot shaft support part (41) are meshed with the fitting teeth (31), and the engaging teeth (41A) of the first pivot shaft support part (41) functions as the resilient member contact part when the engaging teeth (42A) of the second pivot shaft support part (42) are meshed with the fitting teeth (31).

7. The power tool as claimed in claim 4, further comprising an anti-vibration damper (22) disposed between the handle grip (10C) and the base end of the lever for suppressing transmission of vibration from the handle grip (10C) to the lever (21).

8. The power tool as claimed in claim 4, wherein the lever comprises an extensible member (321B) disposed at a specific position between the base end and the free end, and a rotary joint (321C) disposed at a position closer to the free end and permitting a free end part to be pivotally movable relative to the extensible member.

9. The power tool as claimed in claim 4, wherein the lever (21) is spaced away from the handle grip (10C)

with a predetermined gap therebetween, so that the lever (21) functions as a tool-hanging hook.

10. A power tool comprising:

a motor as a drive power source,

a body (10, 110, 210) housing the motor and having an end output unit for chucking an end tool (2, 3) driving a fastener;

a handle grip (10C, 110C, 210C) provided integrally with the body (10, 110, 210); and

a light unit (20, 120, 220) disposed to one of the handle grip and the body, and having a light-emitting element (23, 123, 223) for illuminating a fastener located at a distal end of the end tool, the end tool being driven by the motor to tighten the fastener to a workpiece;

wherein the light-emitting element (23, 123, 223) comprises a yellow LED.

11. A power tool comprising:

a motor as a drive power source,

a body (10, 110, 210) housing the motor and having an end output unit for chucking an end tool (2, 3) driving a fastener;

a handle grip (10C, 110C, 210C) provided integrally with the body (10, 110, 210); and

a light unit (20, 120, 220) disposed to one of the handle grip and the body, and having a light-emitting element (23, 123, 223) for illuminating a fastener located at a distal end of the end tool, the end tool being driven by the motor to tighten the fastener to a workpiece;

wherein the light unit comprises switch means for switching the light-emitting element on and off; and an off circuit (26C) for automatically turning the light-emitting element off at a predetermined time after the light-emitting element turns on.

12. A power tool comprising:

a motor as a drive power source,

a body (110) housing the motor and having an end output unit for chucking an end tool (103) driving a fastener(104);

a handle grip (110C) provided integrally with the body (110); and

a light unit (120) disposed to the body (110), and having a light-emitting element (123) for illuminating a fastener (104) located at a distal end of the end tool (103), the end tool (103) being driven by the motor to tighten the fastener to a workpiece;

wherein the body (110) has a generally hollow cylindrical part at a position corresponding to the end output unit;

wherein the light unit (120) is positioned at a tip end of the end output unit and is generally ring-shaped around a circumference of the generally hollow cylindrical part, and the light unit comprises a lens (124) having a ring shape for emitting light in a ring-like manner from the light-emitting element (123), a power source (125) for driving the light-emitting element (123), and switch means (126A) for switching light-emitting element (123) on/off.

13. A power tool comprising:

a motor as a drive power source,

a body (210) housing the motor and having an end output unit for chucking an end tool (103) driving a fastener(104);

a handle grip (210C) provided integrally with the body (210); and

a light unit (220) having a light-emitting element (223) for illuminating a fastener (104) located at a distal end of the end tool (103), the end tool (103) being driven by the motor to tighten the fastener (104) to a workpiece;

wherein a pull trigger (213) is disposed at a top part of the handle grip (210C) for starting/stopping driving the end tool (103); and

wherein the light unit (220) is disposed immediately above the trigger (213).